

CLAIM AMENDMENTS

Claim 1 (currently amended): A method for processing communications in a satellite telecommunications system comprising the steps of:

providing a gateway and a satellite coupled together through at least one feeder link, said feeder link conveying a plurality of channel blocks;

~~code division multiplexing each of said plurality of channel blocks~~ providing code division multiplexed channel blocks from said plurality of channel blocks using a predetermined individual spreading waveform selected to indicate an origin and a destination of each of said plurality of channel blocks;

transmitting said code division multiplexed channel blocks; and,

routing ~~[[said]]~~ individual ones of said code division multiplexed channel blocks to their destination in accordance with the individual predetermined spreading waveforms.

Claim 2 (original): The method of claim 1, wherein said at least one feeder link is a return feeder link.

Claim 3 (original): The method of claim 1, wherein said at least one feeder link is a forward feeder link.

Claim 4 (original): The method of claim 3 wherein said destination comprises at least a beam of a forward service link.

Claim 5 (currently amended): A method for processing communications in a satellite telecommunications system comprising the steps of:

providing a gateway and a satellite coupled together through at least one feeder link, said feeder link having a ~~pre-determined~~ predetermined bandwidth and a ~~pre-determined~~ predetermined center frequency, and conveying a plurality of channel blocks;

code division multiplexing each of said plurality of channel blocks using a predetermined spreading waveform selected to achieve a spreading bandwidth

corresponding to said predetermined bandwidth and to also to indicate an origin and a destination of each of said plurality of channel blocks; and

upconverting said plurality of code division multiplexed channel blocks such that said plurality of code division multiplexed channel blocks have a center frequency corresponding to said predetermined center frequency.

Claim 6 (currently amended): The method of claim 5, further comprising, after the step of upconverting, the steps of:

transmitting said code division multiplexed channel blocks;

receiving said code division multiplexed channel blocks;

de-multiplexing said plurality of channel blocks; and,

routing ones of said plurality of channel ~~block~~ blocks to their destination determined from said predetermined spreading waveform.

Claim 7 (original): The method of claim 5, wherein said at least one feeder link is a forward feeder link.

Claim 8 (original): The method of claim 5, wherein said at least one feeder link is a return feeder link.

Claim 9 (currently amended): A method for processing communications in a satellite telecommunications system comprising the steps of:

providing a satellite and a user terminal coupled together through at least one service link, said service link having a ~~pre-determined~~ predetermined bandwidth and a ~~pre-determined~~ predetermined center frequency, and conveying a plurality of signals;

code division multiplexing each of said plurality of signals using a predetermined spreading waveform selected to achieve a spreading bandwidth corresponding to said predetermined bandwidth and to indicate an origin and a destination of each of said plurality of signals; and,

upconverting said plurality of code division multiplexed signals such that said plurality of code division multiplexed signals have a center frequency corresponding to said predetermined center frequency.

Claim 10 (original): The method of claim 9, further comprising, after the step of upconverting, the steps of:

transmitting said code division multiplexed signals;
receiving said code division multiplexed signals; and,
de-multiplexing said code division multiplexed signals.

Claim 11 (original): The method of claim 9, wherein said at least one service link is a forward service link.

Claim 12 (original): The method of claim 9, wherein said at least one service link is a return service link.

Claim 13 (currently amended): The method of claim 12, further comprising routing ~~said ones of said signals~~ each of said plurality of signals to their destinations determined from said predetermined spreading waveform.

Claim 14 (currently amended): A method for processing communications in a satellite telecommunications system comprising the steps of:

providing a satellite and a virtual gateway coupled together through at least one virtual link, said virtual link having a ~~pre-determined~~ predetermined bandwidth and a ~~pre-determined~~ predetermined center frequency, and conveying a plurality of ~~signals.~~ signals;

~~code division multiplexing each of said plurality of signals~~ providing a plurality of code division multiplexed signals using a predetermined spreading waveform selected to achieve a spreading bandwidth corresponding to said predetermined bandwidth and to indicate an origin and a destination of each of said plurality of signals; and,

upconverting said code division multiplexed communication signals such that said plurality of code division multiplexed signals have a center frequency corresponding to said predetermined center frequency.

Claim 15 (original): The method of claim 14, further comprising, after the step of upconverting, the steps of:

- transmitting said code division multiplexed signals;
- receiving said code division multiplexed signals; and
- de-multiplexing said communication signals.

Claim 16 (original): The method of claim 14, wherein said at least one virtual link is a virtual downlink.

Claim 17 (original): The method of claim 14, wherein said at least one virtual link is a virtual uplink.

Claim 18 (currently amended): The method of claim 14, further comprising routing said ~~individual ones~~ each of said plurality of signals to their destinations determined from said predetermined spreading waveform.

Claim 19 (currently amended): A method for processing communications in a satellite telecommunications system comprising the steps of:

- providing a first satellite and a second satellite coupled together through at least one inter-satellite link having a ~~pre-determined~~ predetermined bandwidth and a ~~pre-determined~~ predetermined center frequency, said inter-satellite link for conveying communication signals between said satellites;

code division multiplexing said communication signals using a predetermined spreading waveform selected to achieve a spreading bandwidth corresponding to said predetermined bandwidth and to indicate an origin and a destination of each of said communication signals; and,

upconverting said code division multiplexed communication signals such that said communication signals have a center frequency corresponding to said predetermined center frequency.

Claim 20 (original): The method of claim 19, further comprising, after the step of upconverting, the steps of:

transmitting said code division multiplexed communication signals from said first satellite;

receiving said code division multiplexed communication signals at said second satellite;

de-multiplexing said communication signals; and,

routing said communication signals to their destinations determined from said predetermined spreading waveform.

Claim 21 (original): The method of claim 19, wherein said at least one inter-satellite link is a forward inter-satellite link.

Claim 22 (original): The method of claim 19, wherein said at least one inter-satellite link is a return inter-satellite link.

Claim 23 (currently amended): An apparatus for processing communications in a satellite telecommunications system comprising:

a gateway;

at least one feeder link for conveying a plurality of channel blocks, said feeder link having a ~~pre-determined~~ predetermined bandwidth and a ~~pre-determined~~ predetermined center frequency;

a satellite coupled with said gateway through said at least one feeder link;

circuitry in each of said satellite and said gateway for code division multiplexing each of said plurality of channel blocks ~~using a~~ using an individual predetermined spreading waveform selected to achieve a spreading bandwidth corresponding to said predetermined bandwidth and to indicate an origin and a destination of each of said plurality of channel blocks; and,

circuitry in each of said satellite and said gateway for upconverting said plurality of code division multiplexed channel blocks such that said plurality of code division multiplexed channel blocks have a center frequency corresponding to said predetermined center frequency.

Claim 24 (original): The apparatus of claim 23, wherein said gateway and said satellite each further comprise circuitry for de-multiplexing said plurality of channel blocks and using the de-multiplexed channel blocks in a conventional manner.

Claim 25 (currently amended): The apparatus of claim 23, wherein said satellite further comprises circuitry for de-multiplexing said plurality of channel blocks and for routing said ~~individual ones~~ each of said plurality of channel blocks to their destination in accordance with the individual predetermined spreading ~~waveforms~~ waveform.

Claim 26 (original): The apparatus of claim 23, wherein said at least one feeder link is a forward feeder link.

Claim 27 (original): The apparatus of claim 23, wherein said at least one feeder link is a return feeder link.

Claim 28 (currently amended): An apparatus for generating communications in a satellite telecommunications system comprising:

a satellite;

at least one service link for conveying a plurality of signals, said service link having a ~~pre-determined~~ predetermined bandwidth and a ~~pre-determined~~ predetermined center frequency;

a user terminal coupled with said satellite through said at least one service link;

circuitry in each of said satellite and said user terminal for code division multiplexing each of said plurality of signals using a predetermined spreading waveform selected to achieve a spreading bandwidth corresponding to said predetermined bandwidth and to indicate an origin and a destination of each of said plurality of signals; and,

circuitry in each of said satellite and said user terminal for upconverting said plurality of code division multiplexed signals such that said plurality of code division

multiplexed signals have a center frequency corresponding to said predetermined center frequency.

Claim 29 (original): The apparatus of claim 28, wherein said satellite and said user terminal each further comprise circuitry for de-multiplexing said plurality of signals and using the de-multiplexed signals in a conventional manner.

Claim 30 (currently amended): The apparatus of claim 28, wherein said at least one service link is a forward service ~~link~~ link.

Claim 31 (original): The apparatus of claim 28, wherein said at least one service link is a return service link.

Claim 32 (currently amended): The apparatus of claim 28, wherein said satellite further comprises circuitry for de-multiplexing said plurality of signals and for routing said ~~individual ones~~ each of said plurality of signals to their destination in accordance with the ~~individual~~ predetermined spreading ~~waveforms~~ waveform.

Claim 33 (currently amended): An apparatus for generating communications in a satellite telecommunications system comprising:

a satellite;

at least one virtual link for conveying a plurality of signals, said virtual link having a ~~pre-determined~~ predetermined bandwidth and a ~~pre-determined~~ predetermined center frequency;

a virtual gateway coupled with said satellite through said at least one virtual link;

circuitry in each of said satellite and said virtual gateway for code division multiplexing each of said plurality of signals using a predetermined spreading waveform selected to achieve a spreading bandwidth corresponding to said predetermined bandwidth and to indicate an origin and a destination of each of said plurality of signals; and,

circuitry in each of said satellite and said virtual gateway for upconverting said plurality of code division multiplexed signals such that said plurality of code division

multiplexed signals have a center frequency corresponding to said predetermined center frequency.

Claim 34 (original): The apparatus of claim 33, wherein said satellite and said virtual gateway each further comprise circuitry for de-multiplexing said plurality of signals using the de-multiplexed signals in a conventional manner.

Claim 35 (original): The apparatus of claim 33, wherein said at least one virtual link is a virtual downlink.

Claim 36 (original): The apparatus of claim 33, wherein said at least one virtual link is a virtual uplink.

Claim 37 (currently amended): The apparatus of claim 33, wherein said satellite further comprises circuitry for de-multiplexing said plurality of signals and for routing said ~~individual ones~~ each of said plurality of signals to their destination in accordance with the ~~individual~~ predetermined spreading ~~waveforms~~ waveform.

Claim 38 (currently amended): An apparatus for generating communications in a satellite telecommunications system comprising:

a first satellite;

a second satellite coupled with said first satellite through ~~said~~ at least one inter-satellite link for conveying communication signals between said satellites, said inter-satellite link having a ~~pre-determined~~ predetermined bandwidth and a ~~pre-determined~~ predetermined center frequency;

circuitry in each of said first satellite and said second satellite for code division multiplexing each of said communication signals using a predetermined spreading waveform selected to achieve a spreading bandwidth corresponding to said predetermined bandwidth and to indicate an origin and a destination of each of said communication signals; and,

circuitry in each of said first satellite and said second satellite for upconverting said communication signals such that said plurality of code division multiplexed

communication signals have a center frequency corresponding to said predetermined center frequency.

Claim 39 (original): The apparatus of claim 38, wherein said first satellite and said second satellite each further comprise circuitry for de-multiplexing said communication signals and for using the de-multiplexed communication signals in a conventional manner.

Claim 40 (original): The apparatus of claim 38, wherein said at least one inter-satellite link is a forward inter-satellite link.

Claim 41 (original): The apparatus of claim 38, wherein said at least one inter-satellite link is a return inter-satellite link.

Claim 42 (currently amended): A method for processing communications in a satellite telecommunications system comprising the steps of:

providing a gateway and a satellite coupled together through at least one feeder link, said feeder link conveying a plurality of channel blocks;

providing code division ~~multiplexing each of said plurality of~~ multiplexed channel blocks using a predetermined spreading waveform selected to indicate an origin and a destination of each of said plurality of channel blocks, wherein said destination is a beam of a forward service link;

transmitting said code division multiplexed channel blocks; and,

routing ~~said~~ individual ones of said channel blocks to their destination in accordance with the ~~individual~~ predetermined spreading ~~waveforms~~ waveform.